

# ISO/IEC TR 24729-4:2009-03 (E)

## Information technology - Radio frequency identification for item management - Implementation guidelines - Part 4: Tag data security

---

<b>Contents</b>		<b>Page</b>
Foreword .....		v
Introduction .....		vi
1	Scope .....	1
2	Normative references .....	1
3	Terms and definitions .....	2
4	Symbols and abbreviated terms .....	2
5	Background .....	2
5.1	System definition: tag, tag to reader, reader .....	2
5.2	Definition of security .....	3
5.3	Security objectives .....	3
6	RFID data access security risk assessment .....	4
6.1	Risk assessment .....	4
6.2	Probability .....	5
7	Threats .....	6
7.1	Skimming data .....	6
7.2	"Eavesdropping" or "sniffing" on transmission between tag and reader .....	7
7.3	Spoofing .....	7
7.4	Cloning .....	7
7.5	Data tampering .....	7
7.6	Malicious code .....	7
7.7	Denial of access/service .....	7
7.8	Unauthorized killing the tag (electronic or mechanical) .....	7
7.9	Jamming/Shielding .....	7
8	Scenarios .....	8
8.1	Unsecured access control card, no personal identification number (PIN); No encryption or other security feature .....	8
8.2	Secured access control card, no PIN; Encrypted or other security features .....	8
8.3	Customer Loyalty Card .....	9
8.4	EPC Label (Batch Tag ID only) .....	9
8.5	Contactless Payment, No PIN .....	10
8.6	Contactless Payment, PIN .....	10
8.7	Contactless Payment, Biometric or other physical activation .....	10
8.8	Pharmaceutical e-Pedigree .....	11
8.9	Example of Impact .....	11
8.10	Summary .....	12
9	Types of security safeguarding countermeasures .....	13
9.1	Wafer programming (true WORM) .....	14
9.2	ISO Tag ID verification .....	14
9.3	License plate .....	14
9.4	Memory lock .....	14
9.5	Password protection .....	14

9.6	Authentication .....	14
9.7	Cloaking/Data security (obfuscated ID) .....	15
9.8	Encryption .....	15
9.9	Limitation of read distance .....	15
9.10	Summary .....	16
10	Threat response "best practices" .....	16
	Annex A (informative) Encryption .....	17
	Bibliography .....	20